RESIDENTIAL CONSTRUCTION DETAILS

COMMUNITY DEVELOPMENT

1635 FARADAY DRIVE

720-602-2710

Revised December 2003

BUILDING PERMITS

The purpose of a building permit and the building codes are to provide minimum construction standards to safeguard life and property. The City also reviews permit applications for zoning matters to ensure that the City continues to be a safe, beautiful area in which to live, work, and play. The City's building and zoning codes have been carefully enacted to protect the health, safety, and general welfare, of you and your property.

A building permit is required for any work that physically changes or adds structures to your property. There are many exemptions from building permits, so telephone (760) 602-2700 to inquire as to whether a permit is required before beginning your project. Community Development offices are open between 7:30 a.m. and 5:30 p.m. Monday through Thursday and 8:00 a.m. to 5:00 p.m. on Friday.

If you are a homeowner preparing a do-it-yourself project (an owner-builder), you may apply for the permit. Your general contractor may also apply for the permit. Someone acting as an agent, such as an architect or designer, may apply for an owner-builder permit, but the homeowner must still sign the owner-builder disclaimer form before the permit is issued. Although certain accessory structures do not require a building permit, you should contact the Planning Department for information on setbacks from property lines and other zoning regulations that apply to accessory structures. The Planning Department phone number is (760) 602-4601.

GRADING PERMIT REQUIREMENTS

You may need a grading permit if your project meets any of the criteria below:

Coastal Zone	Non-Coastal Zone
• Cut or proposed fill exceeding 100 cubic yards per 8,000 square feet of area. • Excavations exceeding four feet or fill exceeding three feet. • Fill placed on existing slopes exceeding 5:1 horizontal to vertical slope. • Grading that affects drainage patterns. • If the toe of a fill is closer than three feet to a property line. • Clearing and grubbing of previously undisturbed land or land not cultivated for five years for agriculture operations.	• Cut or proposed fill exceeding 100 cubic yards Excavations exceeding 3 1/2 feet in vertical depth. • Fill placed on existing slopes exceeding 5:1 horizontal to vertical slope. • Grading that affects drainage patterns. • If the toe of a fill is closer than one foot to a property line. • Clearing and grubbing of previously undisturbed land or land not cultivated for five years for agriculture operations.

If your project meets any of the above criteria, contact the Engineering Department for assistance. The telephone number for Engineering information is (760) 602-2750.

RESIDENTIAL PLAN REVIEW AND INSPECTIONS

Residential Plan Review normally takes between 12 to 14 working days for initial applications. Comments and corrections are mailed directly back to the contact person listed on the application. Re-review of corrected plans, if necessary, takes 7 to 10 working days. The contact person will be notified when the permit is ready to be issued. You will then receive a building permit, a copy of the approved plans, and a Job Record Card (the card the inspector signs). The approved plans and the yellow Job Record Card must be available on the job site for all inspections. Protect the plans and record card from possible loss or damage. The minimum inspections generally required are:

Underground Plumbing (if necessary)
Foundation and Footings
Roof and Exterior Sheathing (This allows the building to be weather protected while construction continues)
Combination: Framing, Rough Plumbing, Rough Mechanical, and Rough Electrical
Insulation
Drywall and Exterior Lathing
Final Inspection

To schedule an inspection, call (760) 602-2725. This is a voicemail box that records your request. If you call before 2:00 p.m., the inspection will be made the next working day. Field inspectors are usually available between 7:00 and 8:00 a.m. to answer questions or schedule approximate inspection times. The inspectors will try to accommodate your schedule whenever possible depending on their daily workload. To speak to an inspector, call (760) 602-2700 between 7:00 and 8:00 a.m. This is not a voice mail line. Building Inspectors endeavor to schedule appointments within 2-hour windows .

PLANS FOR SINGLE FAMILY DWELLINGS AND RESIDENTIAL ADDITIONS

To process an application for a single family dwelling, a residential remodel, or a room addition you will need:

2 sets of plans
2 copies of a soils report (if the addition is over 1000 square feet or more than one story)
2 copies of the Energy calculations or documentation
2 copies of the Structural calculations (if necessary)

Soils reports are required for two story additions, for adding a second story to an existing house, and for single-story additions over 1000 square feet. Projects that comply with the attached detail sheets do not need a structural engineering analysis or energy calculations. The County Assessor will also need a third copy of the approved plans left at the City Building Department when the permit is issued. If the project is in the Coastal Zone, you will need approval of the project or an exemption letter from the California Coastal Commission prior to permit issuance. The Planning Department can tell you whether your project is in the Coastal Zone. There is a map of the Coastal Zone attached to this handout.

The title sheet of the plans must show the following information:

1.Site address
2. Assessor's Parcel Number and Legal Description of the property.
3. Amount of grading in cubic yards. Write "No Grading" on the plot plan if none is required.
4. Contact person - Name and daytime phone number

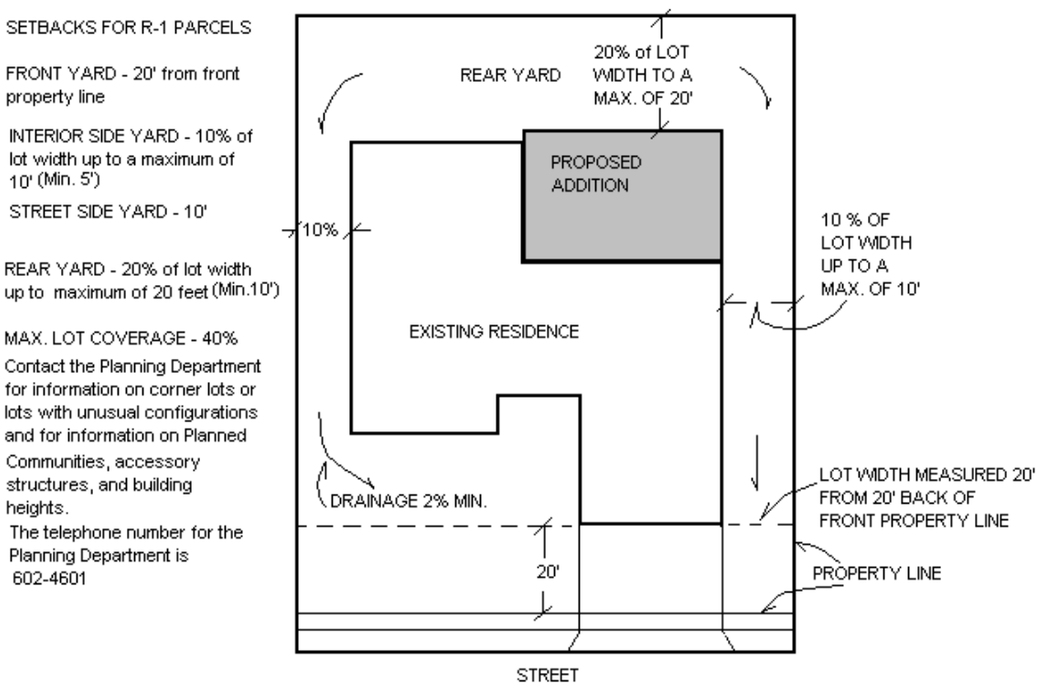
PLOT PLAN REQUIREMENTS

All plans must have a plot plan. The plot plan must show the entire parcel, the footprint of the proposed structure or addition, and any existing structures on the entire property. The footprint should show all bay windows, fireplaces, overhangs and projections and eave overhangs. The plot plan must be dimensioned, and it must be drawn to scale, usually 1" equals 10 feet. It should also show a North Arrow, all property lines, easements, existing or proposed street improvements, dimensioned setbacks, and finish floor elevations.

The plot plan should also show:

- Finish grade adjacent to the building and finish floor elevations
- Existing and proposed slopes and/or retaining walls.
- Driveway, with percent grade and lot drainage patterns with percent slope.
- Percentage of lot coverage. (Total area of all structures on lot as proposed, divided by total lot area)

TYPICAL RESIDENTIAL PLOT PLAN WITH R-1 SETBACKS



FLOOR PLANS, ELEVATIONS, and BUILDING SECTIONS

Plans must show a floor plan of the proposed addition. This is an overhead view of the rooms labeled with the use of the rooms (bedrooms, kitchen, bathroom, etc.). The floor plan is usually drawn to scale at ¼ inch equals one foot. For room additions, the proposed floor plan should show the use of any rooms adjacent to the addition.

Elevations are exterior views of the proposed structure from each side. Elevations show exterior details and the height of the structure. These are also drawn at ¼ inch equals 1 foot scale.

For two story structures and for structures with complex roof framing systems, a cross-section view of the proposed building is required. A section drawing is an internal view of the framing system of the structure generally taken at the mid-point of the structure. These are also drawn at ¼ inch equals 1 foot scale.

FOUNDATION PLAN and FRAMING PLANS

A foundation plan is an overhead view (a plan view) of the proposed foundation drawn at ¼ inch equals 1 foot scale. The foundation plan must show the various footing sections, the dimensions, and reinforcing details for the slab and footings.

Framing plans are plan views of floor and roof framing systems showing all lumber sizes and spacings, and any hardware connectors indicated for each system. These are also drawn at ¼ inch equals 1 foot scale. Additional details in larger scale may be necessary for complex connections.

TECHNICAL CODE MINIMUMS

The notes below are exerpts from the 2001 edition of the Uniform Building Code, City of San Diego Information Bulletin 130, and the City of L.A. Type V Sheet for Wood Framed Residential Buildings. The notes relate to light frame residential construction. If plans show items more restrictive than the notes below, the most restrictive situation shall apply.

I. FOUNDATIONS AND UNDERFLOOR

1. All stumps and roots shall be removed from the soil to a depth of at least 12 inches below the surface of the ground under the structure. (UBC 3302)
2. Forms shall be properly braced to maintain position and shape. Forms shall be sufficiently tight to prevent leakage. (UBC 1906) All forms shall be removed before occupancy.(UBC 3302)
3. Reinforcement shall be secured against displacement during the concrete pour. Hold down anchors shall be tied in place. Provide 3" clear between rebar and earth. (UBC 1907)
4. Concrete for footings must have a minimum compressive strength of 2500 psi @ 28 days.
5. Foundations supporting wood shall extend 6" above finish grade. Provide 18" clearance under wood joists and 12" under wood girders unless wood is pressure treated. (UBC 2317.3)
6. Concrete slabs shall be a minimum of 3 ½ " thick (UBC 1924)
7. All foundation plates or sills and sleepers on concrete or masonry in contact with earth must be pressure treated or foundation grade redwood. (UBC 2317.4)
8. All sills must have full bearing on the footing wall or slab and must be bolted to the foundation with 5/8" diameter steel bolts. The bolts must extend a minimum of 7" into concrete. Bolt spacing shall not exceed 6 feet on center. There must be 2 bolts per piece of sill with bolts not over 12" from the ends of sills. A nut and square washer (2" X 2" X 3/16" thickness) shall connect each bolt to sill. (UBC 1806.6)
9. Underfloor areas must be ventilated by openings in the foundation walls. The openings must have a net area of 1 square foot per each 150 square feet of underfloor area. Openings must be arranged for cross-ventilation and be covered with ¼"‘ galvanized mesh. (UBC 2306.7)
10. Raised floor areas must be provided with an 18 "X 24" effectively screened or covered access. (UBC 2306.3)
11. Foundation cripple walls shall be braced with ½" CDX with 8d common nails spaced 6" o.c. edges and 12" o c in the field. Where cripples do not exceed 14", solid 2X blocking may be used. (UBC 2320.11.5)

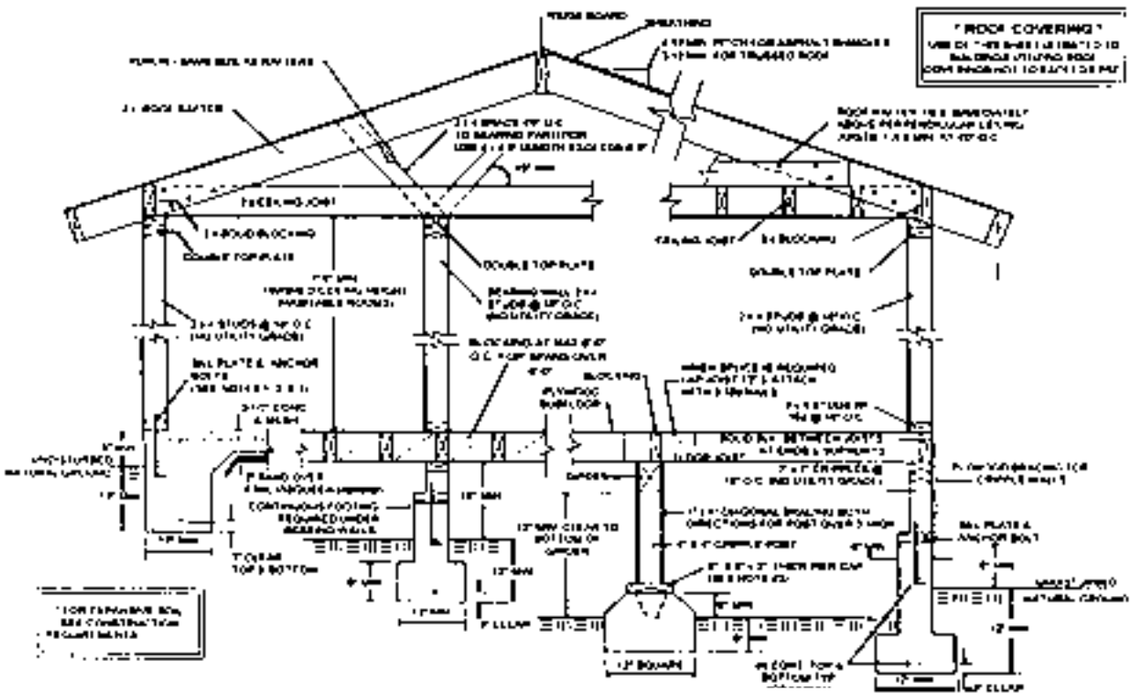
FOUNDATIONS ON EXPANSIVE SOILS

Footings on expansive soil shall be constructed in a manner that will minimize damage to the structure from soil movement. When expansive soil is evident, the design criteria below may be used for single story structures less than 1000 square feet:

1. Footings shall be continuous and footing depths shall be 24" for exterior walls and 18 " for interior walls.
2. Footings or stem walls shall be reinforced with ½" rebar top and bottom.
3. Concrete slabs on grade shall be placed over a 4" fill of coarse aggregate or on a moisture barrier. Slabs shall be reinforced with either 6"x6", 10 Ga. wire mesh or #3 rebar 24" o/c.
4. Footings and slabs shall be doweled into contiguous structures with #3 rebar 24" o/c.
5. The soil below an interior concrete slab shall be saturated with moisture to 18" prior to placing concrete.

II. FRAMING REQUIREMENTS

Framing system to match detail No.1 below and all framing members shall comply with the applicable span tables.



NOTES TO FRAMING DETAIL

1. All joists, rafters, beams, and posts 2" to 4" thick to be No. 2 Douglas Fir - Larch or better. All timbers 5" and

thicker to be No.1 grade Douglas Fir - Larch or better.

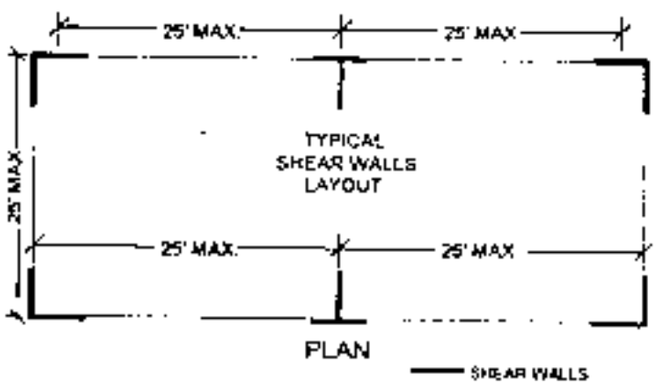
2. Trimmer and header joists shall be doubled, or of lumber of equivalent cross section, when the span of the header exceeds four feet. The ends of header joists more than 6 feet long shall be supported by framing anchors or joist hangers unless bearing on a beam, partition, or wall. Tail joists over 12 feet long shall be supported at header by framing anchors or on ledger strips not less than 2"x 2".
3. Notches on the ends of joists shall not exceed ¼ the joist depth. Holes bored in joists shall not be within 2" of the top or bottom of the joist, and the diameter of any such hole shall not exceed 1/3 the depth of the joist. Notches in the top or bottom of the joist shall not exceed 1/6 the depth and shall not be located in the middle third of the span. Joists framing from the opposite side of a wood girder shall be supported by framing anchors or on ledger strips not less than 2 "x 2".

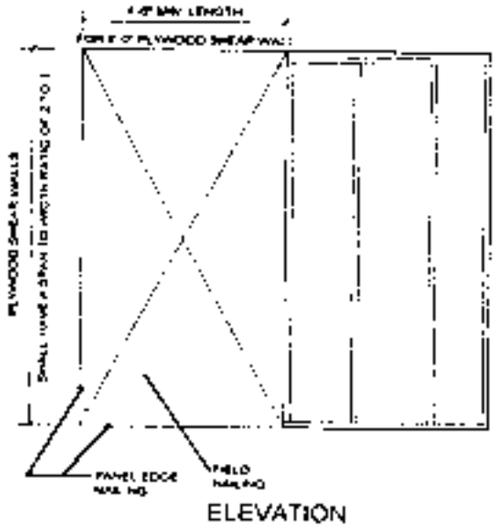
WALLS

1. The maximum height of unbraced 2X4 studs is 10 feet in bearing walls and 14 feet in non-bearing walls.
2. The maximum height of unbraced 2X6 studs is 10 feet in bearing walls and 20 feet in non-bearing walls.
3. In exterior walls and bearing partitions, any wood stud may be cut or notched to a depth not exceeding 25% and not exceeding 40% in non-bearing partitions.
4. A hole may be bored not to exceed 40% of the width of the stud. A hole not exceeding 60% is allowed in non-bearing partitions or in any wall where the studs are doubled, provided not more than two successive studs are so bored. Bored hole shall not be closer than 5/8" to the edge of the stud. Bored holes shall not be located at the same section as a cut or notch. (UBC 2320.11.9)

BRACING

All exterior walls and applicable interior walls shall be braced to resist wind and seismic forces by the use of either plywood or stucco panels. Panel layout shall comply with the following plan:





1. Shear wall panels shall be applied at each end of the braced wall and 25' o.c max.
2. Maximum perpendicular distance between braced wall shall not exceed 25'.
3. All required shear panels shall extend from the sill plate to the horizontal diaphragm (roof)

Plywood: A minimum 4'0" plywood shear panel of minimum 3/8" CDX with 8d common nails spaced 6" o.c. on edges and 12" o.c. along intermediate supports (field), or
Stucco (cement plaster): A minimum 8' wide stucco panel 7/8" thick applied over approved lath reinforcement and attached to all studs, top plates, and bottom plates with approved fasteners 6" o.c.

III. **SPAN TABLES AND SCHEDULES**

PLYWOOD FLOOR AND ROOF SHEATHING SPANS

ALLOWABLE SPANS FOR PLYWOOD FLOOR AND ROOF SHEATHING (Table 23-II-E-I)					
PLYWOOD SIZE Installed continuous over 2 or more supports and face grain of plywood perpendicular to supports.		NAIL SIZES [1]	ROOF		FLOOR Note: Edges must be blocked or tongue and groove sheathing must be used.
Thickness	Identification		Blocked	Unblocked	
3/8"	24/0	6d	24"	20"	0
½"	32/16	6d	32"	28"	16"
5/8"	40/20	8d	40"	32"	20"
¾"	48/24	8d	48"	36"	24"

[1] Nail spacing at panel edges to be 6" o.c. maximum. Field nailing in panels to be 12" o.c. maximum.
[2] These values apply for C-C, C-D, and Structural 1 grades only.
[3] All nails to be "common" or "box" nails.

FLOOR - CEILING - RAFTER SPANS

ALLOWABLE SPANS, RESIDENTIAL DOUGLAS FIR - LARCH NO.2 OR BETTER				
SIZE	SPACING	FLOOR JOISTS 40 psf LL	CEILING JOISTS 10 psf LL	RAFTERS 20 psf LL
2 X 4	12” 16” 24”	6’10” 6’2” 5’2”	11’3” 10’3” 8’11”	8’7” 7’10” 6’10”
2 X 6	12” 16” 24”	9’9” 8’10” 7’9”	17’8” 16’1” 14’1”	14’2” 12’4” 10’0”
2 X 8	12” 16” 24”	12’10” 11’8” 10’2”	23’4” 21’2” 18’6”	18’9” 16’3” 13’3”
2 X 10	12” 16” 24”	16’5” 14’11” 13’0”	 25’5” 23’8”	23’11” 20’8” 16’11”
2 X 12	12” 16” 24”	19’11” 18’1” 15’10”		 25’2” 20’6”

FLOOR GIRDERS SPANS FOR RAISED FLOOR FOUNDATIONS AND HEADERS IN WALLS

FLOOR BEAMS		FLOOR BEAMS		HEADERS	
Size of Beam	Spacing of Girders	Support-ing Partitions	Not Support-ing Partitions	Size of Header	Support-ing Roof and Ceiling
4 X 4	6’0” 8’0”	4’0” 3’4”	4’3” 3’10”	4 X 4	4’0”
4 X 6	6’0” 8’0”	5’11” 5’3”	6’6” 5’8”	4 X 6	6’0”
4 X 8	6’0” 8’0”	7’9” 6’10”	8’6” 7’4”	4 X 8	8’0”
				4 X 10	10’0”
				4 X 12[1]	12’0”

[1] 4 x 12 No. 1 Grade Douglas Fir may be used over a 16’0” garage door opening in one story attached or detached garages without ceiling.

ENERGY COMPLIANCE TABLE

CLIMATE ZONE 7

Floor Area	<101 Square Feet	<1000 Square Feet
Insulation:		
Ceiling	R-19	R-30
Walls	R-13	R-13
Floor	R-13	R-19
Glass:		
Type	Dual Pane	Dual Pane
Square feet allowed	Max. 50 ft^2	20% of floor area*

*The area of any glass removed on this project may be added to the 20% allowable new glass. Attach the completed CF-1R form (using the information above) and attach it to the plans with the Mandatory Measures Checklist. Both forms are available at the Building Department Counter.

NAILING. All nailing shall comply with Table 23-I-Q below.

UBC TABLE 23-I-Q - NAILING SCHEDULE

CONNECTION	NAILING[1]
1. Joist to Sill or girder, Toenail	3-8d
2. Bridging to joist, toenail each end	2-8d
3. 1"X6" subfloor or less to each joist, face nail	2-8d
4. Wider than 1"x6" subfloor to each joist, face nail	3-8d
5. 2" subfloor to joist or girder, blind and face nail	2-16d
6. Sole plate to joist or blocking, typical face nail Sole plate to joist or blocking, at braced wall panel	16d at 16"o.c. 3-16d per 16"
7. Top plate to stud, end nail	2-16d
8. Stud to sole plate	4-8d, toenail or 2-16d, end nail
9. Double studs, face nail	16d @ 24" o.c.
10. Doubled top plates, typical face nail Double top plates, lap splice	16d @ 16" o.c. 8-16d
11. Blocking between joist or rafters to top plate, toenail	3-8d
12. Rim joist to top plate, toenail	8d @ 6" o.c.
13. Top plates, laps and intersections, face nail	2-16d
14. Continuous header, two pieces	16d @ 16" o.c. along each edge
15 Ceiling joists to plate, toenail	3-8d
16. Continuous header to stud, toenail	4-8d
17. Ceiling joists, laps over partitions, face nail	3-16d
18. Ceiling joists parallel to rafters, face nail	3-16d
19. Rafter to plate, toenail	3-8d
20. 1" brace to each stud and plate, face nail	2-8d
21. 1" x 8" sheathing or less to each bearing, face nail	3-8d
22. Wider than 1" x 8" sheathing to each bearing, face nail	3-8d
23. Built-up corner studs	16d @ 24" o.c.
24. Built up girder and beams	20d @ 32" o.c. at top and bottom and staggered 2-20d at ends and at each splice
25. 2 x planks	2-16d at each bearing
26. Wood structural panels and particleboard: [2] Subfloor, roof and wall sheathing (to framing) ½" and less 19/32"-3/4" 7/8" - 1" 1 1/8 " - 1 ¼" Combination subfloor underlayment (to framing) ¾" and less 7/8" - 1" 1 1/8" - 1 ¼"	 6d[3] 8d[4] or 6d[5] 8d[3] 10d[4] or 8d[5] 6d[5] 8d[5] 10d[4] or 8d[5]
27. Panel siding (to framing): ½" or less 5/8"	 6d[6] 8d[6]
28. Fiberboard sheathing:[7] ½" 25/32"	 No, 11 ga.[8] 6d[4] No. 16 ga.[9] No. 11 ga.[8] 8d[4] No. 16 ga.[9]
29. Interior paneling: ¼" 3/8"	 4d[10] 6d[11]

[1] Common or box nails may be used except where otherwise stated.
[2] Nails spaced 6" o.c. at edges, 12 " o.c. at intermediate supports except 6" at all supports where spans are 48" or more. For nailing of wood structural panel and particle board diaphragms and shear walls, refer to Section 2314.3. Nails for wall sheathing may be common, box, or casing.
[3] Common or deformed shank.
[4] Common.
[5] Deformed shank.
[6] Corrosion resistant siding or casing nails conforming to the requirements of Section 2304.3.
[7] Fasteners spaced 3" o.c. at exterior edges and 6" o.c. at intermediate supports.
[8] Corrosion resistant roofing nails with 7/16" diameter head and 1 ½" length for ½" sheathing and 1 ¾" length for 25/32" sheathing conforming to the requirements of Section 2304.3.
[9] Corrosion resistant staples with 7/16" crown and 1 1/8" length for ½" sheathing and 1 ½" length for 25/32" sheathing conforming to the requirements of Section 2304.3.
[10] Panel supports at 16"o.c. [20" if strength axis in the long direction of the panel, unless otherwise marked]. Casing or finish nails spaced 6" on panel edges, 12" at intermediate supports.
[11] Panel supports at 24". Casing or finish nails spaced 6" on panel edges, 12" at intermediate supports.

IV. GENERAL REQUIREMENTS

DEFINITION

Habitable Space (Room) is space in a structure for living, sleeping, eating, or cooking. Bathrooms, toilet compartments, closets, halls, storage or utility space, and similar areas are not considered habitable space.

ROOM DIMENSIONS

Floor Area. Dwelling units shall have at least one room which shall have at not less than 120 s.f. of floor area. Other habitable rooms except kitchens shall have an area of not less than 70 s.f.

Width. Habitable rooms other than a kitchen shall be not less than 7 feet in any dimension.

Ceiling Heights. Habitable space shall have a ceiling height of not less than 7'6" measured to the bottom of the finished ceiling. Kitchens, halls, bathrooms and toilet compartments may have a finished ceiling height of not less than 7'.

LIGHT AND VENTILATION

General. For the purpose of determining the light and ventilation required by this section, any room may be considered as a portion of an adjoining room when ½ of the area of the common wall is open and unobstructed and provides an opening of not less than 1/10 the floor area of the interior room or 25 s.f., whichever is greater.

Natural light. All habitable rooms shall be provided with natural light by means of exterior glazed openings with an area not less than 1/10 the floor area of such rooms with a minimum of 10 s.f.

Natural Ventilation:

Habitable Rooms. Natural ventilation by means of openable exterior openings with an area not less than 1/20 the floor area of the room with a minimum of 5s.f.

Other Rooms. Bathrooms, water closet compartments, laundry rooms and similar rooms (except laundry rooms) shall be provided with natural ventilation by means of openable exterior openings with an area not less than 1/20 the floor area of the room with a minimum openable area of 1 ½ s.f.

Mechanical Ventilation (In lieu of required exterior openings for natural ventilation):

Habitable Rooms. A mechanical ventilating system capable of providing two air changes per hour may be provided. 1/5 of the air supply shall be taken from the outside.

Other Rooms. In bathrooms containing a bathtub or shower or combination thereof, laundry rooms, and similar rooms, a mechanical ventilation system connected directly to the outside capable of providing 5 air changes per hour may be provided. The point of discharge of exhaust air shall be at least 3 feet from any opening into the building.

Attic. Attic areas shall be ventilated with openings having net area of not less than 1 square foot per 150 s.f. of attic area. The openings shall be covered with ¼" (max) galvanized wire mesh.

SANITATION

Toilet Facilities. New water closets shall have a maximum flush capacity of 1.6 gallons, and shall be located in a clear space not less than 30 " wide. There shall be a clear space in front of the water closet of not less than 24".

Shower Areas. Showers shall have floors and walls finished with smooth, hard, non-absorbent surfaces such as Portland cement, ceramic tile, or other approved material to a height of not less than 70" above the drain inlet. Materials used in walls, other than structural elements, shall be of a type that is not adversely affected by moisture. Showers shall have a minimum area of 1024 square inches (net), and shall be capable of encompassing a 30" circle.

Glazing for Shower and Bathtub Enclosures. Glazing used in doors and panel of shower and bathtub enclosures shall be fully tempered 1/8" thick glass or ¼" laminated safety glass. Hinged shower doors shall open outward.

EMERGENCY ESCAPES

Emergency Egress. Every sleeping room shall have at least one operable window or exterior door approved for emergency escape. These emergency escape doors or windows must provide a full clear opening and shall be operable from the inside without the use of special tools. All egress windows shall have a net opening of 5.7 s.f (821 square inches)with a minimum net clear height of 24" and width of 20". The finish sill height of egress windows shall not be more than 44" above the floor.

SMOKE DETECTORS

General. Smoke detectors are required for new construction of sleeping rooms and corridors or areas giving access to sleeping rooms.

Location. The required smoke detector(s) shall be mounted on the wall of the sleeping room, and at a point centrally located on the wall or ceiling of the corridor or area giving access to the sleeping room, and on each level of the dwelling unit. Detectors shall be installed according to the manufacturer's installation instructions, with no part of the detector more than 12" from the finished surface of the ceiling.

Power. Required smoke detectors installed in the areas of new construction or of the addition shall receive their primary power from the building wiring and shall be equipped with a battery backup. Detectors may be battery operated when installed in buildings which undergo alterations, repairs, or additions.

Additions. When the valuation of additions, alterations, or repairs to residential occupancies exceeds $1000, smoke detectors shall be installed in all areas as noted above.

EXITS DOORS

Provide at least one exit door with a lock or latch that is openable from the inside without using a key (no double cylinder key deadbolts) and without special knowledge (no combination locks). The lock or latch must be within 48" of the finish floor. Hallways must be at least 36" wide.

MISCELLANEOUS

Doors. Doors in all dwellings shall have a minimum width of 32".

Water Heater Location. No water heater which depends on the combustion of a fuel for heat shall be installed in any room used or designated for sleeping purposes, a bathroom, a clothes closet, or in any confined space opening into a bathroom or sleeping room.

Water Heater Anchorage. All water heaters shall be anchored to resist horizontal displacement. Strapping shall be at points within the upper 1/3 and lower 1/3 of the tank's vertical dimensions. The lower strap shall be a minimum of 4" above the controls.

Separation of Private Garages. Every wall and ceiling separating a dwelling from a garage shall be protected on the garage side with materials approved for one-hour fire-resistive construction, and a self-closing, tight fitting, solid wood door a minimum 1 3/8" thick, or a listed fire resistive assembly with a rating of not less than 20 minutes. Under no circumstances shall a private garage have any openings into a room used for sleeping purposes. Air ducts passing through the occupancy separation wall, floor, or ceiling shall be not less than 0.019" thickness steel (No. 26 gauge galvanized sheet).

Separation of Private Carports. An occupancy separation need not be provided between a dwelling and a carport having no enclosed uses above, provided the carport is entirely open on two or more sides.

Attic Access. An attic access opening shall be provided for attics with a vertical height greater than 30". The opening shall be located in a hallway or other readily accessible location. The opening to be a minimum of 22" by 30".

Safety Glazing. Approved tempered glass shall be used in the following locations:

1. Glazing in ingress and egress doors.
2. Glazing in doors and enclosures for hot tubs, whirlpools, saunas, showers, and bathtubs. Glazing in any portion of a building wall enclosing these compartments where the bottom edge of the glazing is less than 60" above the standing surface and drain inlet.
3. Glazing within 24" of either vertical edge of a closed door when the glazing is within 60" of the walking surface.
4. Glazing that meets all of the following criteria:
    a. Individual pane >9 square feet.
    b. Bottom edge < 18" above the floor.
    c. Top edge > 36" above the floor.
    d. Walking surface within 36" of glass.
5. Glazing in guardrails.
6. Glazing in stair enclosures and landings or within 5' of the bottom and top of stairways where the bottom edge of the glazing is within 60" of the walking surface.

Stairways. All residential stairways with more than three risers shall conform to this section.

1. Stairways shall be a minimum of 36" wide.
2. The maximum rise is 8", and the minimum run is 9". Maximum deviation between steps is 3/8".
3. Stairways shall have handrails on one side. Open stairways shall have handrails on both sides.
4. Open stair railings shall have intermediate rails with openings such that a 4" sphere cannot pass through the opening.
5. Handrails shall be mounted between 34" and 38" above the tread nosing. The hand grip shall be between 1 ½" and 2" in cross section dimension. The must be 1½" between the handrail and the wall.

Guardrails. All unenclosed floor and roof openings, open and glazed sides of stairways, landings, and ramps, balconies or porches more than 30" above grade or the floor below must be protected by a minimum 36" guardrail. Openings in guardrails shall have intermediate rails with openings such that a 4" sphere cannot pass through the opening.

ELECTRICAL NOTES

Separate electrical plans are not required for residential construction. The field inspector may require you or your electrician to provide a "San Diego Area Circuit Card" at the time of the rough wiring inspection. This will assist in the inspection of the wiring. The floor plan should show the proposed location of all new receptacles, lights, switches, and other permanently wired electrical appliances.

RECEPTACLE regulations are generally:

WALLS: Receptacle spacing should be at 12 feet maximum measured along the wall surface.
COUNTER TOPS: At every separate kitchen counter top space 4 feet on center maximum. (Minimum 20 amp)
BATHROOMS: One receptacle at each basin location. (GFCI Protected)
OUTSIDE: One receptacle at grade level at the front and back of the dwelling unit. (GFCI Protected)
LAUNDRY: One receptacle at for the laundry.
BASEMENTS AND GARAGES: One receptacle for the garage and/or basement. (GFCI Protected)
HALLWAYS: Hallways 10 feet or more in length shall have at least one receptacle.
BEDROOMS: An arc-fault circuit interrupter shall protect all branch circuits that supply newly installed or relocated bedroom receptacles.

LIGHTING OUTLETS are also required for certain locations in dwelling units. They are required at:

1. One switch controlled light or receptacle in every habitable room, bathroom, hallway, stairway, attached garage, and at outdoor entrances or exits. Lighting switches for stairs shall be located at each floor level where there are six or more steps.
2. One switch controlled light at entrances to the attic, underfloor space, utility room, and basement.
3. One switch controlled light near equipment requiring service in attics or under floor spaces. The switch shall be located at the point of entry.

GROUND-FAULT CIRCUIT-INTERUPTION (GFCI) PROTECTION FOR PERSONNEL

The following receptacles shall be protected by GFCI receptacles or circuit breakers:

1. All receptacles in bathrooms.
2. All garage receptacles except appliance circuits.
3. All outdoor receptacles within 6 feet of grade.
4. All counter top receptacles in kitchens except dedicated appliance circuits.
5. In wetbars when the receptacle is within 6' of the sink

MECHANICAL NOTES

The heating system shall be capable of maintaining a room temperature of 70^0F. at a point 3 feet above the floor in all habitable rooms (Approximately 25 BTUs per square foot).

Solid fuel burning appliances or wood burning stoves will be an acceptable source of heat for a family room, den, or living room addition only.

Warm air furnaces shall not be installed in bedrooms, bathrooms or closets, or in any enclosed space with access only through such rooms or spaces.

Alcoves or closets for warm air furnaces shall be at least 12” wider than the furnace and shall provide 3” clearance for the top, back, and sides of the furnace. 6” clearance is required along the combustion chamber opening side.

Clothes dryers require a minimum 4” smooth metal exhaust duct to the outside. The connector may be flexible duct.

Cook tops and ranges shall have 30” clearance to combustibles over the cooking surface. If protected by a ventilating hood, the clearance may be 24”. All range hood ducts shall be smooth metal.

This guide is not intended to include all possible regulations related to construction or remodeling of residential buildings. Other field conditions may result in required corrections as indicated by a City Building Inspector. This document is a guide to aid in the design and construction of single story residential additions, If there are questions not addressed in this guide, or you need clarification, please call the Carlsbad Building Department at (760) 602-2700.

Patrick Kelley
Building and Code Enforcement Manager